RESPONSE AND AMENDMENT – REMARKS

Amendment to the Claims:

Applicants request entry of the amendments to claim 1. A marked-up copy of the claim as amended is attached as a separate sheet.

Rejection based upon 35 USC §112:

The Examiner rejected claim 1 under 35 USC §112, remarking that the phrase "the additional mixture" in claim 1 had no antecedent basis. The Applicants have adopted the suggested amendment to claim one to change the phrase to "an additional mixture." Applicants respectfully request withdrawal of the rejection.

Rejections based upon 35 USC §102(b):

The Examiner rejected claims 1, 2 and 4-9 under 35 USC §102(b), alleging that these claims are anticipated by Mozayeni (US 5,434,079). In particular, the Examiner states that cell-free systems wherein the components of the feeding solution and other parameters (e.g., upper and lower limits of parameters such as temperature, concentration and flow rate) may be changed during the synthesis of polypeptides is taught by Mozayeni. Applicants respectfully disagree that Mozanyeni anticipates the claims as currently amended.

The passages of the Mozayeni reference mainly cited by the Examiner in this regard (col. 7, ll. 2-35) are directed to the replacement of specific ingredients lost during operation of the process (l. 18/19), the injection of a readily measured ingredient (e.g. a radiolebelled amino acid, an mRNA or an elongation factor) for pulse-chase studies (l. 21-23) or to the control of parameters (e.g., feed solution composition) in order to optimize the process (l. 27-29). However, nothing is mentioned by Mozayeni regarding performing the synthetic process by changing the concentrations of the selected components (e.g., Mg^{2+}, K^{+} or NTP) as defined in claim 1. This means that Mozayeni does not teach changing the concentration of the respective components during the process. The present invention is patentably distinct from the prior art synthesis processes (e.g. Mozayeni) because the prior art processes maintain the same predetermined concentrations of such components, both in the reaction mixture and in the feeding solution. As stated in the specification at page 4, lines 27-34, such prior art processes require optimization work which is both expensive and time-consuming.

Claim 1 has been amended to more clearly define the invention such that there is no confusion regarding this point. The method of claim 1 is neither directly nor implicitly taught by the Mozayeni reference, and is therefore not anticipated. Applicants

respectfully request withdrawal of the rejections based on alleged anticipation by the Mozayeni reference.

Rejection based upon 35 USC §103:

The Examiner also rejected claim 3 under 35 USC §103 as obvious over Mozayeni in view of Wimmer (US 5,674,729). The Examiner states that Wimmer teaches a process for the synthesis of viral proteins in a cell-free medium using NTP and Mg^{2+}, and combines this with the teachings of Mozayeni to argue for obviousness.

As stated above, Mozayeni fails to teach the process of changing the concentrations of the components during the process. Wimmer does not cure this failure. Wimmer simply teaches adjusting the total Mg2+ concentration in relation to the added NTPs for an optimal production of virus protein (col. 10, ll. 57-59). Thus, this adjustment in Mg2+ concentration is related to the starting concentration of the components, and has nothing to do with the instant invention. In the present invention, at least one of the selected components is continually changed within the upper and lower limit of the respective determined range during the synthetic process.

Simply put, Mozayeni fails to teach the invention, and combining Wimmer with Mozayeni fails to fill in the gaps in this teaching. For this reason, the instant invention is nonobvious and patentable over the cited references. Applicants respectfully request withdrawal of the rejection based upon §103.

Conclusion:

For the reasons cited above, Applicants believe the claims as currently amended are patentable, and request withdrawal of all rejections and allowance.

Respectfully submitted,

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1. (Currently Amended) A method for obtaining polypeptides in a cell-free system by which the reaction mixture is prepared with the use of a cell lysate or cell extract, the parameters of the cell-free system and the mode of synthesis are chosen, the type and parameters of at least on porous barrier are determined, the reaction mixture and the feeding solution are placed in the reaction module, and the synthesis is performed, wherein upon the parameters of the process are chosen, the types of the selected components determining the productivity of the synthesis are selected, the upper and lower limits of the range within which the concentrations of the selected components are changed during the synthesis are defined, ~~the~~an additional mixture containing the selected components is formed, the additional mixture is supplied to the reaction mixture or to the feeding solution, the synthesis is performed ~~with~~by continuously changing concentrations of the selected components within the defined ranges while the concentrations of the other components are maintained constant.

2. (Original) The method according to claim 1 wherein at least one of the selected components is chosen from the group consisting of Mg^{2+}, K^{+}, NTP, polyamine or their combination.

3. (Original) The method according to claim 2 wherein one combination of the selected components includes Mg^{2+} and NTP.

4. (Original) The method according to claim 1 wherein the mode of synthesis is chosen at least from one mode selected from a group consisting of translation, transcription-translation, transcription or combinations of these modes.

5. (Original) The method according to claim 4 wherein depending on the mode of synthesis, NTPs contained in the additional mixture consist of a group of ATP, GTP, UTP and CTP or a group of ATP and GTP.

6. (Original) The method according to claim 1 wherein the additional mixture is supplied to the reaction mixture before the synthesis or during the synthesis, or the additional mixture is supplied to a part of the feeding solution before the synthesis or during the synthesis.

7. (Original) The method according to claim 6 wherein the additional mixture is supplied once, recurrently or continuously during the synthesis.

8. (Original) The method according to claim 1 wherein the mode of input of low molecular weight components of the feeding solution to the reaction mixture is selected from a group of continuous exchange modes, a group of continuous flow modes, or a combination of these modes.

9. (Original) The method according to claim 1 wherein the reaction mixture is prepared using a cell lysate or cell extract obtained from prokaryotic or eukaryotic cells.